Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

BULLETIN

OF THE

TORREY BOTANICAL CLUB.

Vol. XII.] December, 1885. [No. 12.

Fresh-Water Algæ. X.

By FRANCIS WOLLE.

(Plate LI.)

Two weeks spent in Florida, in the latter part of the month of March last, an occasional exploration nearer home and a few parcels from correspondents, suggested the following notes referring mainly to plants new to the United States. They are arranged in the order of proposed classification of our fresh-water algæ.

Ectocarpus, Lyngb. E. RIVULARIS, *n. sp.*—Tufts loose, 2–6 inches long, dark olive-green ; filaments stout and firm, much branched ; branches erect patent, mostly alternate, decompound ; stems and branches tapering. Diameter of lower part of stems often 250μ, branches 100μ, more or less ; articulations of stems and of branches rarely more than half as long as wide, often shorter ; propagula rare, elliptic-oblong, acute, subsessile, constricted at base ; older parts of stems corticulate, at first marked by longitudinal threads over the articulations, then by an irregular reticulation.

The *Ectocarpi* form a family of about fifteen species in our American marine waters, abundant along the Atlantic and Pacific coasts. The new species, *E. rivularis*, is claimed for fresh water. It has hitherto been found in only three known localities in Florida. The first discovery, made by myself, was in a fresh water marsh pool about two miles inland from Green Cove Spring, March, 1885. A month later, Rev. H. D. Kitchel found the same plant at Blue Springs on the St. John's River, more than two hundred miles from the sea. In a collection made by Capt. J. Donnell Smith in 1878, and sent to me, I discovered the same plant and made an illustration in my sketch book, but did not identify it then. The specimen came intermingled with other fresh-water algæ.

Among marine forms the plant is nearest *Ectocarpus Durkeei*, described by Harvey in his Nereis Boreali-Americana. More modern authors consider this form a mere variety of *E. granulosus*, Ag.; however this may be, it coincides with neither; besides affecting fresh water, it is much more rigid and robust, and the articulations of the stem are shorter, usually less than half the diameter.

Thorea, Bory. *T. ramosissima*, Bory.—Lake Osceola, Florida. The specimen found was small, but sufficient for identification.

Œdogonium, Link. *Œd. acrosporum*, D.B., var. LONGATUM, *n. var.* —Diameter of filament 7–8μ; much more slender than in the forms described, and the cells more elongated, averaging twice the usual length, 5–11 times longer than broad.

Œd. echinospermum, A. Br., var. SPERMOGONIO-MULTICELLULARE, *n. var.*—Gynandrosporous, oospores globose, echinulate, spines very slender, dense and long. Androsporangia 2–5-celled ; dwarf males with spermogonia 8–10-celled. Fils. 25μ–30μ ; oogon. 50μ ; stipes of males 18μ ; spermog. cells 15μ.

I collected finely developed specimens of this new variety in lakes at Winter Park, Florida, March, 1885.

ŒD. CATARACTUM, *n. sp.*—Idioandrosporous ; oogonia often terminal, single or twin, obovate or subglobose, or broadly oval, pore in upper part ; oospore globose or egg-shaped globose, nearly filling the oogonium; androsporangia 2–6-celled ; dwarf males somewhat curved, seated on or sometimes below the supporting cell ; spermogonia one-celled. Veg. cells 28μ–38μ long, 1.5–3μ diameter. Oogon. 55–60μ long, by 60–75μ. Oosp. 50–55μ long, by 50–60μ. Cell andro. 26–30μ long, by 10–15μ. Stip. dw. males 10μ long, by 65μ.

Rapid stream below High Falls, Dingman's Ferry, July, 1885.

Œd. punctato-striatum, D. By.—A good European species, for the first time here in lakes near Winter Park, Florida, March, 1885.

Cladophora, Ktz. *C. ægagropila*, Linn., var. THERMALIS, *n. var.*—Clusters attached, 1.5–2$^{cm.}$ in diameter, dark green ; filaments rigid, much branched, more or less radiating from a common centre; branching lateral, erect patent, often enlarged towards the ends ; articulations long, 10–20 diameters.

In manner of growth it has the appearance of *C. glomerata*, var. *pumila*, Bail., but the branching is lateral immediately below the apex, and not terminal as in that species. It has much in common also with sterile *Pithophora*. Comparing with European specimens of *ægagropila*, this is a fair representation, but it may be well to continue observations on fresh specimens in different seasons of the year for complete identification. The plant was found attached to the planked sides of the outlet of the large sulphur springs at Green Cove Spring, Florida, also attached to sticks of old wood in coves of bark at Silver Spring, Florida. The waters of both places are warm and sulphurous.

Dictyosphæreum, Naeg. D. HITCHCOCKII, *n. sp.*—Cells green, broadly oval, length about one and one-half time the diameter; others indicating division by transverse constriction in the middle ; clustered in radiating branched series, held by slender, colorless, gelatinous threads; each cell having chlorophyll radiately gathered around a large central granule. The cells measure 12–13μ wide, 18–20μ long.

Frequent in Split Rock Pond, N. J.

Zygnema (Ag.) Ktz. Z. PURPUREA, *n. sp.*—Primarily yellowish green, but soon changing to a dark purple, articulation one diameter to more rarely two diameters ; fruiting filaments more or less geniculate; zygospores spherical, cells not (or but slightly) swollen. Diameter of filaments 20μ to (rarely) 25μ.

This plant is common in ponds and lakes of New Jersey, floating in large masses often yards in extent, filaments often geniculately united, but never in perfect fruit. I was fortunate in finding the same plant last March in the Tocoi marshes near St. Augustine, Florida. Wide ditches alongside the railroad were literally covered with a smooth, glistening, dark purple mantle. Here for the first time were discovered good fruiting specimens which determined the hitherto doubtful generic position of the plant. The chlorophyll is usually more or less centrally contracted in each cell. There is no evidence of twin nuclei, a fact which, with the color and the geniculate feature of the filaments, makes a distinct specific character.

Mesocarpus, Hassal. M. CRASSUS, *n. sp.*—Vegetative cells robust, measuring, with slight variation, 50μ in diameter, 5–10 times as long as wide; fruiting cells very nearly, or perfectly straight; zygospores smooth, spherical, 65μ in diameter.

Floating in extended, pale yellow- green masses on ponds near St. Augustine, Florida. In every way much larger than the largest of described species, and the articulations proportionately longer.

Staurospermum, Ktz. *S. gracillimum*, Ktz.

Lakes near Winter Park, Florida.

Bambusina, Ktz. *B. gracilescens*, Nord. (Plate LI., Figs. 13–14). This is described in my Desmids of the United States as a variety of *B. Brebissonii.* Whether viewed as such or as a distinct species, it was an interesting discovery to find fine fruiting specimens frequent in a pond near Winter Park, Florida.

Diameter of cells, 14μ; length, 23μ; apices, 8μ; zygospore, 15μ.

An observation made by Rev. H. D. Kitchel, and by myself, on gatherings from the same marsh pond is worthy of special note. The plant conjugates, not like one of the Desmidiaceæ, but, like one of the Zygnemaceæ, in longer or shorter series; often when the zygospores are nearly matured, the cells of one side separate and cause the other side to bend backward in a reversed, semi-circular form. We found the fruiting specimens in many stages of conjugation, first putting out separately narrow gelatinous connecting tubes, then these uniting and forming complete conjugation, next the chlorophyll passing out of the cells, flowing together in the tube, and gradually developing the zygospore, until fully matured.

Judging by these specimens, the correctness of the generic position of *Bambusina* may be questioned.

Sphærozosma, Corda. *S. pulchrum*, Bail., var. CONSTRICTUM, *n. var.* (Plate LI., Fig. 12).—Cells half as long as wide, with a decided constriction in each lobe between the axis and the apex. Diameter, 70–75μ.

Lake near Kissimme, Fla.

S. moniliforme, Lund. (Plate LI., Fig. 11).—Diameter 20μ; length of cell 40μ.

Lake near Kissimme, Fla.

Cosmarium, Corda. *C. Eloisianum*, Wolle. A species hitherto found only in Minnesota now turns up also in Splitrock Pond, New Jersey.

Micrasterias, Ag. *M. verrucosa*, Roy. (Plate LI., Fig. 10.)—In outline this species agrees with forms of *M. denticulata* (Bréb) Ralfs., but differs from these and all other described forms by the remarkable row of crenulated, circular or oval basal inflations crossing from side to side, larger towards the centre, gradually growing smaller towards the margins. The original, typical plant was found in Scotland. The first from this country was from a pond near Minneapolis, Minn., in collections made by Miss E. Butler.

M. ringens, Bail., var. SERRULATA, *n. var.* (Plate LI., Fig. 15.) —In size and form the same as the original type from Florida. Bailey describes it as "granular near the margins," but not as serrated. This new variety has the margins distinctly serrated. Found in large numbers in White Bear Lake, near Minneapolis, Minn., by Miss E. Butler. Diameter 115–130μ by 125–145μ.

M. furcata, Ag., var. SIMPLEX, *n. var.* (Plate LI., Figs. 6 and 7.) —Cell equal in length and breadth, two-lobed, end lobe exserted, its divisions spreading, producing a wide, shallow sinus ; lateral lobes usually simple, sometimes divided into two, narrow, linear divergent sections, furcate at apices. Length and breadth 140–150μ.

A singularly variable species; of thirty-one specimens examined by Rev. H. D. Kitchel and myself, twenty were of normal form, as in the upper half of figures 6 and 7, no arms divided ; five had all the lateral arms divided like the lower half of figures ; one had two arms divided and one single; two had only one arm divided, and three had each two arms divided.

All from pond near Winter Park, Florida.

The second form mentioned, with all the lateral arms divided, is near the form described (Desmids United States, p. 111) as *M. pseudofurcata*, and needs further observations.

Staurastrum, Meyer. *St. Wolleanum*, Butler, var. MISSIMMENSE, *n. var.* (Plate LI., Figs. 1, 2 and 3 front, side and end views.)—A large smooth and beautiful form, fully one-half larger than the typical plant from Minnesota. The arms are similarly constructed and arranged, but, in proportion with the body, are much longer, nearly equal in length to the diameter of the body; apices not notched, but tipped with several small spines. Diameter, including the arms, 100–125μ.

Grassy shores of lake at Kissimme, Florida, March, 1885.

ST. TOKOPEKALIGENSE, *n. sp.* (Plate LI., Figs. 4–5).—Cell smooth, semicell in front view oval with gradiating arms; end view triangular, each angle drawn out into a smooth arm nearly as long as the diameter of the body; two similar arms on each side; all at nearly equal distances, and furcate at the apices. Diameter, including arms, 75μ.

This species occurs frequently in small coves of Lake Tokopekaliga, at Kissimme, Florida. It bears features in common with *St. furcatum*, Bréb., but is about twice the size, has more arms, and has them differently arranged; the description "one spine at each angle, with two accessory spines at the base," or "three spines at each angle," does not apply.

St. paradoxum, Meyen., var. OSCEOLENSE, *n. var.* (Plate LI., Figs. 8–9.)—This variety is near the typical form, but larger, and with the apices of the arms much more prominently forked. Spread of arms, 60–70μ.

St. longispinum, Bail.—This species, hitherto recognized by Prof. Bailey only, was found by Rev. H. D. Kitchel, the past summer in Florida, and by myself in New Jersey.

The front view was not described by Bailey and hence not mentioned in my Desmids of the United States, p. 145. The semicells are smooth, broadly elliptic, with the angles terminated by two, long, stout, subulate spines.

Lyngbyapapyrina, Kir. (*Phormidium papyraceum*, Ktz.)—Collected by W. A. Setchell, New Haven, Conn.

Oscillaria chalybea, Mertens. Florida.

Beggiaboa leptomitiformis, Trevis.—Collected by Miss G. Lewis, Clifton Springs, N. Y. April, 1885.

Spirulina tenuissima, Desmaz.—Frequent in sulphur springs, Green Cove Spring, Florida, and Clifton Springs, N. Y.

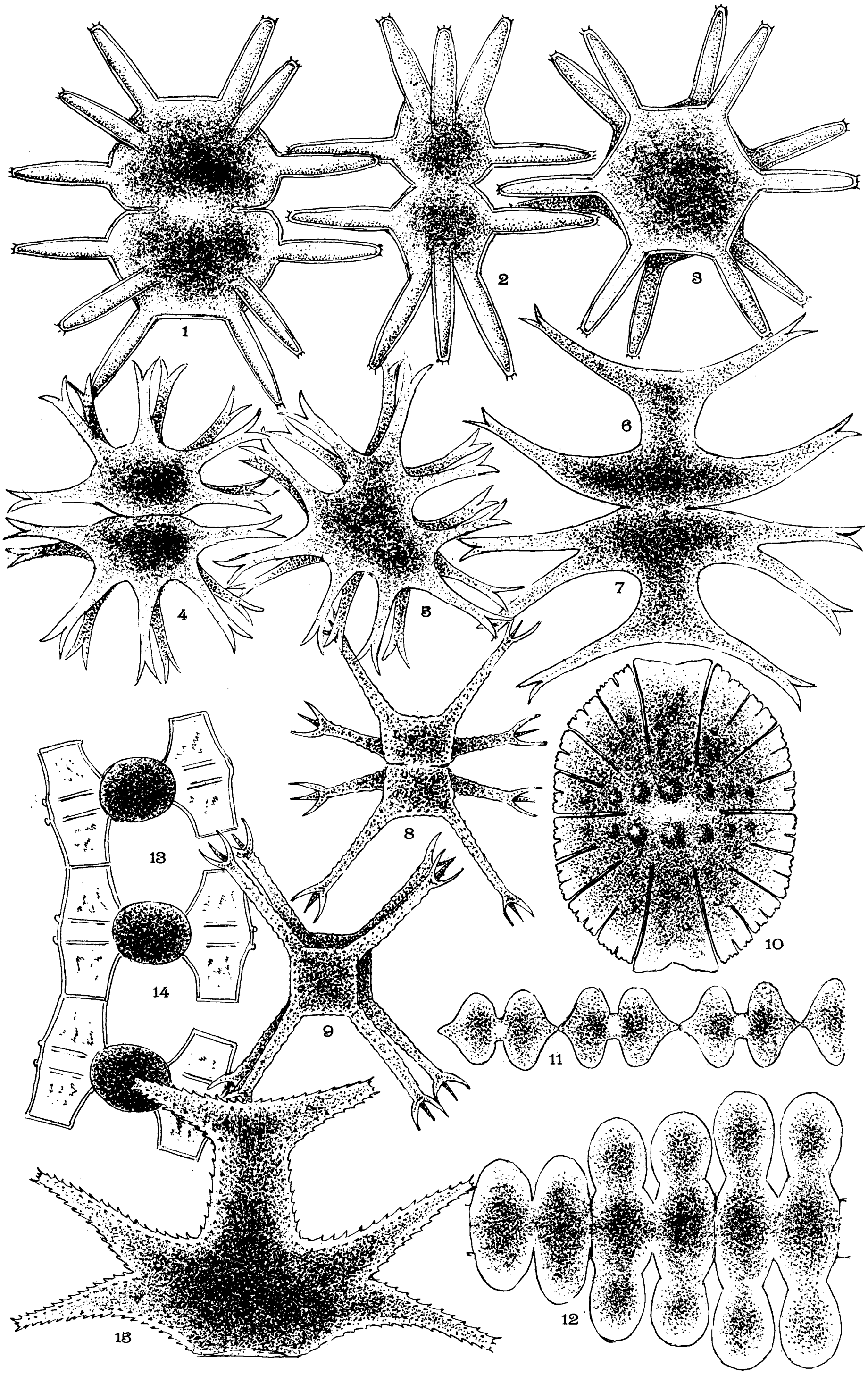
The Origin of Herbaria.[*]—At a meeting of the Botanical Society of Lyons, May 5th, 1885, Dr. Saint-Lager gave the results of the researches that he had made regarding the historical origin of herbaria. He had been led to this study by reading a work recently published by Messrs. Camus and Penzig upon the subject of a herbarium of the end of the sixteenth century discovered in the archives of Modena. In the first place, Dr. Saint-Lager stated that in the writings of the naturalists of antiquity no collection of plants that had been first dried and pressed and then united in volumes is ever spoken of. Yet it is certain that among the Greeks there were *botanologoi*, who, as the name indicates, devoted themselves to the gathering of plants. These persons were called also *rhizotomoi*, 'root-cutters,' and it was their business, particularly, to stock the shops of the *phytopolai*, or herb-dealers, called in Latin *herbarii*.

We know also that a botanical garden was established at Athens by Aristotle, and afterwards ceded to Theophrastus his pupil, and his successor at the Lyceum. Theophrastus bequeathed his garden, natural history museum and dwellings to his disciples. Pliny tells us that he often enjoyed visiting the garden wherein the venerable Antonius Castor cultivated all the plants of Italy, Greece, Asia Minor, Egypt and India. There was also a botanical garden near the celebrated School of Medicine of Alexandria. Later on, in the middle ages, the centre of phytological studies was transferred to Salerno, where Matthæus Silvaticus founded a garden which served as a model for all those that were established in several towns of Italy, Holland, Germany, England, Russia and France.

As botany, on account of the numerous applications formerly made of it in medicine, was, among the natural sciences, the one that had most adherents, it seems surprising at first sight that the art of preserving plants, dried and pressed, did not keep pace with that of cultivating them, and that Linnæus's aphorism that *omni botanico herbarium necessarium est* has not from all times been a fundamental clause in the cartulary of botanists. It is well to remark that the word *herbarium*, which might prove misleading, was used up to the middle of the sixteenth century to designate a botanical treatise accompanied with engravings opposite the text. Such is the *Herbarium* of Apuleius Platonicus and that of Giacomo Dondi, *Le Grant*

---

[*] From the *Bulletin trimestrial de la Société botanique* de Lyon, April–June, 1885, p. 61.



NEW DESMIDS OF THE UNITED STATES.